From APB No. 25 to SFAS No. 123: A Study in Accounting for Employee Stock Options

A Senior Honors Thesis

Presented in Partial Fulfillment of the Requirements for graduation with distinction in Accounting in the undergraduate colleges of The Ohio State University

by

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August 1996

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THESIS ABSTRACT

THE OHIO STATE UNIVERSITY
FISHER COLLEGE OF BUSINESS

(Please type all information requested. The margin requirements are the same as those for the text of your thesis.)

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QUARTER/YEAR

Summer/96

DEPARTMENT:

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DEGREE:

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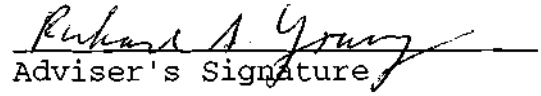
TITLE OF THESIS:

From APB No. 25 to SFAS No. 123: A Study in Accounting for Employee Stock Options

(Summarize in the space below the purpose and principle conclusions of your thesis. Please single space and do not exceed 100 words.)

Employee stock option plans have been an important part of the compensation package offered to employee. The core issue related to employee stock options is how the plans should be valued on the financial statements. The 1972 Accounting Principles Board Opinion No. 25 and the recently released Statement of Financial Accounting Standards No. 123 both address the valuation issue. This paper studies the characteristics of APB 25 and SFAS 123 as well as their applications. The paper then offers a modified valuation approach which attempts to achieve the goal of providing better information on employee stock option plans to the users of financial statements.



Adviser's Signature

Acknowledgments

This paper would not have been possible without the continuous encouragement and support of my adviser, Professor Richard A. Young, at The Ohio State University. I am also indebted to Professor Thomas Burns, Professor Richard Murdock and Mrs. Rema Monaco-King at the Fisher College of Business for their help. I am grateful to my family and friends for their moral support.

Dedication

I would like to dedicate this paper to Shun-Shing Chou, my father, who is fighting liver cancer at this very moment.

Introduction

Since the 1970s, employee stock option plans have been an important part of the compensation package offered to employee. As reported in Accounting Trends & Techniques, 1990, 556 of the 600 surveyed companies disclosed stock options plans.[1] Many companies offer their executive large amounts of stock options. For example, AT&T chairman Robert Allen's stock option plan could give him $9.7 million worth of stock in the next four years.[2] Criticisms from investors arise when such stock options are not recognized. For options that are recognized on the financial statements, the issue is how to determine their value.

Accounting Principles Board Opinion No. 25 ("APB No. 25" or "Opinion") was released in 1972 to address the valuation issue. The intrinsic value method was adopted. The intrinsic value is defined as the excess of the stock price over the exercise price at the date the option is granted. The Opinion generated a great deal of criticisms and was replaced by Statement of Financial Accounting Standards No. 123 ("SFAS 123"), which was released in 1995. SFAS 123 encourages the use of a fair value based approach.

This paper first studies the characteristics of APB 25 and its application. Then the paper performs similar analysis for SFAS 123. Lastly, the paper offers a modified valuation approach in an attempt to achieve the goal of

providing better information on employee stock option plans to the users of financial statements.

Overview of accounting standards for stock options

Before 1993, accounting for stock-based employee options was governed by APB Opinion No. 25, "Accounting for Stock Issued to Employees." Under APB No. 25, companies recognize no compensation cost for fixed stock options plans, which are options with known exercise price and the number of option shares at the grant date, at the date the options are granted if the stock price at that date does not exceed the exercise price. In other words, there is no intrinsic value for such fixed options. If, however, the stock price exceeds the exercise price, then the difference, or the intrinsic value, must be recognized. Most companies set the exercise price above the stock price to avoid recognition.

Compensation cost for variable plans, however, is usually recognized. Variable plans, commonly known as performance-based plans, are those plans with either the exercise price or the number of options shares or both to be determined at a date later than the grant date.

The Opinion generated a lot of criticism because the amount of compensation cost can be greatly understated since companies only have to recognize the cost incurred by variable plans but ignore the cost of fixed plans. As a

matter of fact, most companies only offer fixed plans to their employees and few of them offer variable plans.

In response to the criticisms, Financial Accounting Standards Board ("FASB") issued an exposure draft entitled "Accounting for Stock-Based Compensation" in June 1993 in an attempt to replace APB No. 25. The exposure draft required companies to use a fair value approach on stock options. Under the fair value approach, compensation cost must by recognized at the date of grant. Companies must use one of the option pricing models recommended by the FASB to calculate the value of the options at the grant date, and they must recognize the value on their financial statements.

The exposure draft met a tremendous amount of opposition once it was released. The FASB received over 1,700 comment letters. Most of them opposed the exposure draft.[3] Criticisms came from public and nonpublic companies, public accounting firms and even the government. Most people fear that recognizing the value of the options in the financial statements would raise the cost of capital and result in a lower net income. Some people argue that the option value is too difficult to estimate and complain that even with a reliable option pricing model, it is complicated to apply the model due to the many assumptions that must be made.

The Congress got involved in the fiery debate of employee stock options. For the first time, it attempted to influence, if not to regulate, accounting standard setting. In a letter from Congressman Edward Markey to Arthur Levitt, Jr., Chairman of the Securities and Exchange Commission ("SEC"), Markey raised the concern of many participants in the stock options debate that the FASB failed to consider the economic and social consequences when deciding on accounting standards and urged the SEC to take charge in accounting standards setting when necessary.[4] Levitt, however, declined to overrule FASB's proposal and supported its independence in its standards making process. He also declared it inappropriate for Congress to prescribe accounting standards through legislation.[5]

The debate continued until the FASB issued Statement of Financial Accounting Standards No. 123, "Accounting for Stock-Based Compensation", in October 1995. As a way to compromise in this new statement, FASB maintained its position on the fair value-based method that stock options have value at the date of grant and thus the value must be made known to users of the financial statements. Instead of forcing companies to recognize the value in the statements, FASB allows them either to recognize the cost in financial statements or to disclose the information in footnotes. If the latter approach is chosen, pro forma

income must be disclosed as if the fair value-based method was used in financial statements.

FASB prefers the use of the fair value-based method introduced in SFAS No. 123 over the intrinsic value-based method under APB Opinion No. 25. Although the new statement does not mandate the use of the fair value-based method, it encourages companies to adopt the method in financial statements. In essence, the information on the fair value of the options will be presented to the users of financial statements since the effective date of SFAS 123. A company must choose between financial statements recognition and footnote disclosure and make the decision that is the most appropriate under its situation.

APB 25 and its pros and cons

APB 25 distinguishes compensatory employee stock option plans from non-compensatory plans. A plan is considered non-compensatory if it possesses four characteristics: (1) substantially all full-time employees meeting limited employment qualifications may participate, (2) stock is offered to eligible employees equally or based on a uniform percentage of salary or wages, (3) the time permitted for exercise of an option or purchase right is limited to a reasonable period, and (4) the discount from the market price of the stock is no greater than would be reasonable in an offer of stock to current stockholders or others.[6] Discounts up to 15% are permitted in practice.[7]

Plans without all four characteristics are considered compensatory. For an employer corporation, non-compensatory plans incur no expenses to the company. Accounting for non-compensatory plans is similar to the accounting for selling stocks to raise capital.

Compensatory plans, however, may involve the recording of compensation expense under APB 25. Compensation cost is determined on the measurement date and is allocated as periodic expense over a service period in which the employee must remain employed in order to be able to exercise the stock option plan. The cost is calculated as the excess of the quoted market price of the stock at the date of grant over the option price, multiplied by the number of shares granted. Measurement date is defined as "the first date on which are known both (1) the number of shares that an individual employee is entitled to receive and (2) the option or purchase price."[8]

There are two common types of compensatory stock option plans: the fixed plan and the performance-based plan. In a fixed plan, the measurement date is also the date of grant. The number of shares and the option price are known at that date. The granting company usually attempts to avoid recording compensation expense by setting the option price equal to or higher than the quoted stock price at the grant date. Since the stock price is not

greater than the option price, no compensation expense is incurred under APB 25.

A performance-based plan, on the other hand, has a measurement date that is later than the date of grant. Usually, the option price is to be determined by the performance of net income at a later date. The terms in the option contract often includes a provision that the higher the net income of the company, the lower the option price, and thus more compensation would be received by the employee. APB 25 requires an estimate of compensation cost, or the intrinsic value, to be made at the end of each financial period which is before the measurement date for performance-based plans. The compensation cost must be recorded in the financial statements and amortized over the service period as compensation expense. At the end of each financial period, both the cost and expense need to be computed based on the quoted market price of the stock at the end of the period. Adjustments are made to reflect changes in quoted stock price each year. The adjustment should continue to be made until the measurement date where the exact option price and the number of shares are known. After the measurement date, the compensation cost and periodic compensation expense are recorded based on the known price and number of shares, no longer the estimates.

While APB 25 attempts to provide better and complete information to the users of financial statements, it

incorporates several weaknesses in its method of accounting for compensatory stock options. The treatments of various compensation plans are inconsistent. Fixed plans usually have no effect on the financial statements, whereas performance-based plans result in periodic expenses. Both types of plans are essentially the same--they are purported to compensate employee for services performed in the past and in the future. If the Accounting Principles Board considered compensatory plans, regardless of the type, to have value, then both fixed plans and performance-based plans should recognize such value.[9] The Board requires companies to provide relevant information relating to performance-based plans, but not to fixed plans. As a result, the users of financial statements can obtain an estimate of the approximated cost of performance-based plans, but have no estimate of the value of fixed plans. The following example demonstrates the inconsistency:

Data for the example:

1. Employee A and Employee B of XYZ Co. are each granted a stock-based compensatory plan on January 1, 1996 when the stock price of the company is $40 a share.
2. A has a fixed plan. He is entitled to purchase 100 shares of stock at $45 a share 3 years from the date of grant, or January 1, 1999.
3. B has a performance-based plan. He is entitled to purchase 100 shares of stock at a price of $50 reduced by

the average percentage increase in net income in the next two years. The measurement date, thus, is at January 1, 1998. The exercise date is same as A's plan--January 1, 1999.

4. The actual percentage increase in net income in 1996 and 1997 is 10%.

5. On December 31, 1996, the estimated percentage increase in net income for the 1996-97 period is 8%.

6. The stock prices at December 31, 1996 and 1997 are $48 and $52, respectively.

XYZ Co. recognizes no compensation cost under APB 25 for A's fixed plan since the option price of $45 is greater than the stock price of $40 on the measurement date, or the intrinsic value is zero. Even when the intrinsic value went up later, it needs not to be recognized. When A exercises his plan at January 1, 1999, he actually receives a compensation benefit of $700, or ($52-$45) x 100. However, the $700 has never been and will never be recorded as a compensation cost or allocated as compensation expense during the two years of service period. For B, on the contrary, XYZ must record compensation cost and expense at the end of each period, specially, at December 31, 1996 and 1997. The journal entries are as follows:

1. At the end of the first period, or at December 31, 1996, XYZ estimated the option price to be $46, or $50 x (1-8%). Based on this estimate, the compensation cost is $200, or

($48-$46) x 100. Compensation expense for the period is $67, or $200/3.

Deferred compensation cost, estimated	200	
Executive stock options outstanding		200
Compensation expense	67	
Deferred compensation cost		67

2. At December 31, 1998, which is the measurement date, the actual exercise becomes known and is calculated to be $45, or $50 x (1-10%). The compensation cost is $700, or ($52-$45) x 100. Since $200 has been recorded in the previous year, an additional $500 must be recorded. Likewise for periodic expense, it should be $233, or $700/3, for the current year. However, since only $67 was recorded in the previous year, a catch-up amount of $166, or $233-$67, must be recorded.

Deferred compensation cost	500	
Executive stock options outstanding		500
Compensation expense	399	
Deferred compensation cost		399

3. On December 31, 1998, the last one third of the deferred compensation cost will be amortized, the entry is as follows:

Compensation expense	233	
Deferred compensation cost		233

In the three-year period, a total of $700 of compensation cost has been recorded in the financial statements for B's performance-based plan. Although A received the same amount of compensation under the fixed plan, the financial statements show no quantitative value of it. This

inconsistency prompts many companies to issue more fixed plans than performance-based plans. It violates the consistency principle, which is one of the important elements in the conceptual framework for setting accounting standards.

Another weakness of APB 25 is the use of quoted market price of the measurement date. For a fixed plan, whether there is a compensation cost needed to be recognized depends on the quoted market price at the date of the grant. The price may not necessarily reflect the average performance of the stock if the market price fluctuates significantly. It is under the company's discretion to choose any date of the year to grant stock-based compensation plans to its employees. By manipulating the date of grant, the company can avoid recording any compensation cost. Although the company may simply choose to raise the exercise price to avoid recognition, it may not always prefer to do so if it wants to reward its employees as much as it can through stock options. The company may choose a day at which the stock price is lower than usual and grant the options at a relatively low exercise price, but not lower than the stock price. Even though the stock price may bounce back to a level that is much higher than the option price on the next day, there is still no need for the company to recognize any compensation

cost. Only the stock price on the date of grant is taken into account for the cost recognition purpose.

For performance-based plans, the periodic compensation expense depends on the quoted stock price at the last day of the period. If this particular day's stock price is not representative of the average performance of the year, then the compensation expense can be volatile. In the example presented above, the first year's expense of $67 is substantially lower than the average expense of $233 in the three years. This is a result of the low stock price at year end. The second year's expense is $399, almost six times higher than that of the first year. This large increase is due to the high stock price at year end and a catch-up amount which is the result of the small expense recognized in the previous year. Neither year's expenses faithfully represent the normal expense of the year. If the periodic expense allocation is purported to serve the purpose of the matching principle, then using the quoted stock prices at year-end dates fails to match the expenses to the operating revenues of the year.

The third weakness of APB 25 is the improper classification of assets and equity. The amount of compensation cost is recorded as an asset account entitled "deferred compensation cost" and as an equity account entitled "executive stock options outstanding." (See example above) Assets are defined as "economic resources

of an enterprise that are recognized and measured in conformity with generally accepted accounting principles."[10] Certain deferred charges such as prepaid costs are also considered as assets. Deferred compensation cost is not an economic resource which is owned by the company. Such cost may bring to the company's higher employee morale and/or low turnover rate. However, it does not give the company the right to own the free mind of its employees. Unlike prepaid insurance or prepaid rent which entitle the company the legal right of utilizing these resources until the they are expired, deferred compensation cost does not hold employees legally liable for working in the company until the end of the service period. The compensation is an expense to the company, and such expense is similar to salary expense which is the reward to employees for service performed. The compensation cost is not an equity, either. Before the grantee of a stock-based option plan exercises the option, the plan remains as a promise. A promise to make an employee one of the owners of the company does not make this employee an owner until he or she actually holds the stock of the company. Furthermore, there is always a possibility that the employee chooses not to exercise the option and that he or she will never become the owner. Therefore, compensation cost should not be accounted for as equity until after the employee exercises the options. Before the exercise, the option plan is more of a liability

to the company. Liabilities are defined in APB Statement No. 4 as the economic obligations of a company. After the employee successfully fulfills all the requirements of an option plan, the company is obligated to issue the stock to the employee if demanded. The obligation is a result of taking the economic resources, or human capital, provided by the employee. Capital is defined by Irving Fisher as the "stock of wealth at an instant of time."[11] Capital includes both share capital and debt capital. Before the employee exercises the options, he or she provides debt capital to the company through rendering services with the expectation to be paid with cash or stock. After the employee exercises the option, he or she becomes share capital provider with the expectation of increasing wealth by higher stock price. Therefore, compensation cost recognized before the options are exercised should be viewed as a liability instead of an equity.

SFAS 123 and related issues

SFAS 123 which is released in October 1995 specifically addresses the accounting issues relating to stock-based compensation option plans. Unlike the intrinsic value-based method directed by APB 25, the Statement adopts a fair value-based method of accounting for employee stock options and similar equity instruments. Under the fair value based method, compensation cost is measured at the date the option plan is granted. The cost

then is recognized over the service period. This treatment applies to both fixed plans and performance-based plans. For stock options, fair value is determined using an option-pricing model. SFAS 123 recommends the use of either the Black-Scholes model or the binomial model--both are commonly used to determine the value of traded options in the financial world. An option's value is determined by six factors under the option-pricing model. They are (1) the stock price at the grant date, (2) the exercise price, (3) the expected life of the option, (4) the volatility of the underlying stock, (5) the expected dividends on the stock, and (6) the risk-free interest rate over the expected life of the option.[12] According to SFAS 123, no subsequent adjustments need to be made after the date of grant for changes in these factors. In other words, despite the continuing changes in the fair value of the options, the accounting estimates made at the grant date is not changed on the financial statements. The option value is increased by a higher stock price, a longer term of expected life of the option, a high expected volatility, and a high risk-free interest rate. In addition, the value is decreased by a high exercise price and a large amount of expected dividend.[13]

After the fair value of the compensation cost under an option plan is measured at the grant date, the cost is recognized in the financial statements over the service

period on a straight-line basis. At the end of each financial period, an amortized amount of the cost is debited to an expense account entitled "Compensation cost" and credited to a corresponding equity account. For example, the compensation cost in an option plan with a service period of five years is measured to be $10,000 at the date of grant. At the end of each year, the following journal entry will be made:

Compensation cost expense	2,000	
Additional paid-in capital--stock options		2,000

$2,000 = $10,000 / 5

The $10,000, which is the total amount of the compensation cost, is based on the option value per share, as calculated in an option-pricing model, multiplied by the number of shares that are expected to vest after the service period. Periodic compensation cost is revealed in the income statement. When the option plan is exercised, the amount in the "additional paid-in capital--stock options" account will be debited along with the "cash" account, and the "common stock" account will be credited.

SFAS 123 replaces APB 25. It brought a conclusion to a twelve-year long project on employee stock options conducted by the Financial Accounting Standards Board. Since its release, there has been an on-going debate on its merits and flaws. It may be worthwhile to analyze its characteristics and to assess its strengths and weaknesses. The Statement addresses the problem of inconsistency of

accounting for different types of option plans in APB 25. Under the Statement, compensation cost is measured on the date of grant for both fixed and performance-based plans. The Board believes that APB 25 did not give a level of playing field to companies which award the same amount of compensation cost to employees under different plans. Companies using the fixed plans recognize no cost in the financial statements and realize a higher net income than companies using the performance-based plans.[14] SFAS 123 eliminates the inconsistency by requiring the measurement for all plans at the same date.

SFAS 123 recognizes compensation cost as a periodic expense instead of an asset as in APB 25. Expenses are defined in FASB Concepts Statement No. 6 as

> "outflows or other using up of assets or incurrences of liabilities (or both) from delivering or producing goods, rendering services, or carrying out other activities that constitute the entity's ongoing major or central operations."[15]

Compensation cost represents an amount of resources given up to employees in exchange for their services. If the company did not grant the options to employees and instead sell the options to investors, the company would receive an inflow of cash. When the company grants the options to employees, it does not receive cash in return but instead receives services from them. The Board acknowledges that some people asserted that because the issuance of stock options does not result in the incurrence of a liability,

no expense should be recognized.[16] However, issuance of stock options could become more of a liability when the certainty that the grantee would exercise the options increases. If the grantee was expected not to exercise the options, then the company is under no obligation to force the employee to exercise the options. By the same token, if the grantee was expected to exercise the options, then the company must issue the stock upon request even if it may want to do otherwise. Liabilities are "probable future sacrifices of economic benefits" that a company incurs as a result of receiving services from the employee during the service period. It is true that the employee may forfeit the right to exercise the options, and the company is relieved from the liability after the options expire. However, factors such as increasing stock price may cause the employee to be more likely to exercise the options, thus the obligation of the company to pay for the employee's services through issuing stock is more apparent. In sum, compensation cost is an expense that is resulted from using up of the labor resources and incurring of liabilities. The Board's decision to classify compensation cost as an expense is justified.

SFAS 123 recognizes the value of employee stock options. Such value is not recognized under APB 25. Instead, APB 25 recognizes the payoff of exercising the options as the compensation cost, or the intrinsic value.

SFAS 123 does not take into account the actual economic profit that the employee may receive upon exercising the option. The following example illustrates this difference in practice:

1. At January 1, 1996, the date of grant, the company awards Employee C an option plan to purchase 100 shares at January 1, 1999, which is the first exercise date.
2. The stock price at January 1, 1996 is $50.
3. The stock price at January 1, 1999 is $70.
4. The plan is performance-based. The estimated exercise price at January 1, 1996 is $50. At January 1, 1999, the exercise turns out to be exactly $50.
5. The measurement date is January 1, 1999.

At January 1, 1996, using an option-pricing model, the company takes into account the six aforementioned factors, and calculates the option granted to C to be worth $17.25 a share. The compensation cost under SFAS 123 is $1,725, or $17.25 x 100 shares. The $1,725 represents the value of the option plan which is presumed to approximate the value of similar options that are traded in the stock market. Under APB 25, however, the compensation cost recognized is $2,000, or ($70 - $50) x 100 shares. The $2,000 represents the payoff received by C when she exercises the plan at January 1, 1999. The timing of measurement the compensation cost under SFAS 123 and APB 25 is different. The $1,725 is measured at the grant date, and the value is

not changed subsequently. The $2,000 is estimated and adjusted throughout the three-year period. The final measurement takes place at the first exercise date.

The Financial Accounting Standards Board's decision to place a value on stock options can be justified. The Boards maintains that "nonrecognition of compensation cost implies either that employee stock options are free to employees or that the options have no value--neither of which is true."[17] Unlike traded options which investors must pay cash to acquire, employee stock options are paid by employee with their services. The requirement that an employee must provide services during a service period before he or she is eligible to exercise the options gives the evidence of the employee's payment to acquire the options in the form of service. Such payment represents a value of the stock options and should be recognized. Thus, the question is not whether the stock options have value--they do--but how the options should be valued.

Many people have questioned the use of the fair value approach. Fair value is defined in the Statement as

> "the amount at which an asset could be bought or sold in a current transaction between willing parties, that is, other than in a forced or liquidation sale."[18]

Since no subsequent adjustment will be made after the fair value is determined after the grant date, the six factors used to determine the value must stay unchanged from the grant date to the exercise date in order to keep the value

the same as the fair value in the transactions in the interim period. Four of the six factors are less likely to have drastic changes. They are the exercise price, the expected life of the option, the expected dividends and the risk-free interest rate. The other two factors, the stock price and its volatility, can fluctuate greatly over time. Any change in the factors would make the fair value determined on the grant date a historical value and cause it unable to reflect the value of current transactions. Unless the fair value is adjusted up-to-date with the current available information, the value is not a fair value, but rather a historical cost. Therefore, what disguises behind the SFAS 123's fair value based method is a historical cost based method.

The proponents of the historical cost principle believe that it automatically requires the recording of all actual transactions in the past and the information can be easily verified.[19] The opponents, however, argue that historical costs cannot be used as a means of recording current events because they lose their significance once the events have passed.[20] In accounting for stock options, if reliable and current information can be obtained to value the option, then compensation cost should be adjusted to bring the cost up-to-date. In this respect, the intrinsic value based method under APB 25 which is applied to performance-based stock options may have more advantages

in reflecting up-to-date stock prices. Compensation cost for performance-based options is periodically adjusted with current stock price until the measurement date. The adjusted compensation cost under APB 25 provides more reliable information to the users of financial statements than unadjusted compensation cost under SFAS 123 because users are genuinely interested in current events taking place in the company.

Another controversy surrounding SFAS 123 is the use of an option-pricing model, namely the famous Black-Scholes model. Many people have raised the concern that whether the Black-Scholes, which is designed for valuation of traded options, can offer a fair estimate of employee stock options. Yet more people are concerned with the complication of applying the model due to the many assumptions.

The Black-Scholes option-pricing model is first introduced in 1973 by Fischer Black and Myron Scholes. They believe that an option is almost sure to be exercised if the stock price is much greater than the exercise price. Thus the current value of the option will thus be approximately equal to the price of the stock minus the price of a pure discount bond that matures on the same date as the option, with a face value equal to the exercise price of the option.[21] The relation between option value and stock price is shown in the following graph:[22]

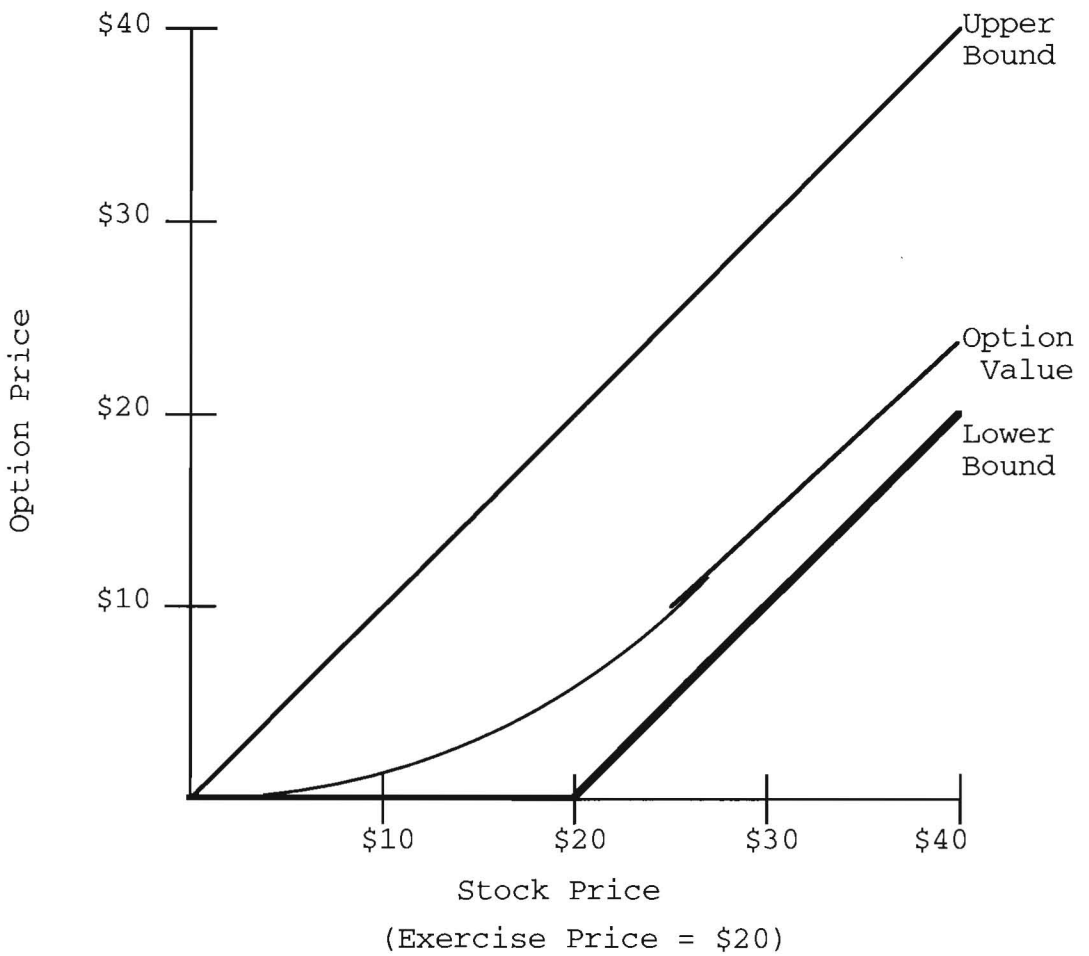


Figure 1. The Relation Between Option Value and Stock Price

The diagonal line in the graph represents the upper bound of the option price where the option value equals the share price. The option value cannot be greater than the share price because people would buy the stock instead of the option. The lower bound represents the situation where the option value equals the payoff of holding the option. The option price will not remain below the lower bound because the demand for such a lowly priced option will drive the option price up. According to Black and Scholes, the option price will be approximately equal to the stock price

(the upper bound) if the expiration date of the option is far in the future. Likewise, the option price will be approximately equal to the stock price minus the exercise price, or the payoff of exercising the option (the lower bound).[23]

The Black-Scholes model was derived based on several important assumptions, and some of the assumptions may not apply to employee stock options. First, the model assumes that the options are freely traded. Prices of options traded in a free market are driven by supply and demand. As predicted by the Efficient-Market Hypothesis, prices in capital markets fully reflect all available information in an unbiased manner.[24] Information asymmetries in an efficient market are unlikely to happen. Employee stock options, however, have no marketability, and their value can easily be affected by employees of the companies. Top executives who are granted the options can directly influence their firms' stock prices, especially over the long run.[25] They may grant themselves option plans when the stock price is low and thus accrue a low compensation cost calculated from the Black-Scholes model. Over the long run, a successful top executive who is able to raise the stock price substantially reward himself/herself an option value that is much higher than the Black-Scholes value. A less successful executive may get less than the Black-Scholes value.[26] Therefore, the employee option value

calculated using the Black-Scholes model may not offer a reliable value since it is susceptible to manipulation.

The second assumption of the Black-Scholes model is that the option is a European option which is exercised on the expiration date. Most options, including employee stock options are American options which can be exercised on or before the expiration date. SFAS 123 takes into account this problem by using the expected life of the option, instead of the contractual term, when calculating the fair value of the option.[27] In practice, large companies may have more difficulties in estimating the expected life of the option. Such companies must predict the investing behavior of a large number of employees. SFAS 123 suggests that companies may group employees according to their investing patterns. Predictions can be made for each group. Although this method sounds feasible, the process may be tedious and cumbersome for both the employees and the company. Some people suspect that auditors may have to spend a considerable amount of time at the human resource departments and ask for a history of stock options exercises for the last five or ten years to figure out how long it takes before people exercise the options.[28]

The Black-Scholes model also assumes that the stock pays no dividends. Dividend payment reduces the value of the options. Companies that pay dividend must deduct the

expected dividend amount from the stock price. Dividend yield is assumed to remain the same over the life of the options. SFAS 123 provides that if the dividend yield changes over time, the option-pricing model needs to be modified to take dividends into consideration.[29]

In making SFAS 123, the Financial Accounting Standards Board is aware of the fact that the Black-Scholes model is not designed for the valuation of employee stock options. The Statement has allowed certain degree of flexibility to companies. However, many people still believe that the Black-Scholes value overstates the value of employee stock options. Alfred M. King, the vice president of Valuation Research Corp. proposed a 40 percent haircut of the Black-Scholes value.[30] King labeled this haircut as "marketability discount" because he asserts that employee stock options have no market, and the more difficult to sell an item, the less value the item has.

What could be done differently?

Given the problems related to the accounting method provided in SFAS 123, a nostalgia of APB 25 arises. APB 25 offers simplicity to accountants. If it can be modified to eliminate the inconsistency in its approach, it may provide a more workable valuation method for employee stock options than SFAS 123.

The proposed valuation approach presented in this paper has great similarity to APB 25. This approach

considers the payoff of an employee stock option as the compensation cost, but not the value of the option contract itself as in SFAS 123. Unlike APB 25, this approach requires the recognition of compensation cost for both fixed option plans and performance-based plans since the date the options are granted. Similar to APB 25, this approach calls for periodic adjustment of compensation cost based on the current stock price. Compensation expense is recognized in an expense--similar to SFAS 123--and a corresponding liability account. It is calculated by the intrinsic value, or the difference between the stock price and the exercise price, multiplied by the number of shares granted in the option plan. The following example demonstrates the accounting treatment of employee stock options under this new approach:

1. The company grants Employee J a fixed stock option plan at January 1, 1996.
2. The service period is three years, starting from January 1, 1996 to January 1, 1999.
3. The first exercise date is at January 1, 1999.
4. J is entitled to purchase 100 share of stock at $50 when he exercises the option plan.
5. The stock prices at January 1, 1996, 1997, 1998, and 1999 are $50, $55, $62, and $58, respectively.

Under the proposed method, there is no compensation cost at the date of grant since the stock price and the exercise

price are the same. In other words, there is no intrinsic value at the date of grant. At the end of the first financial period, or at January 1, 1997, compensation cost is recognized since the stock price is above the exercise price. The following journal entry is made:

Compensation expense	500	
Deferred stock option liability		500

$500 = ($55 - $50) x 100 shares

The $500 represents the reward to J for his value-added services during the year. It is an expense to the company for acquiring J's services in 1996. The amount is part of J's compensation package which includes other forms of rewards such as salary. In the second year, stock price rises again, and the company incurs additional expense. The following entry is made:

Compensation expense	700	
Deferred stock option liability		700

$700 = ($62 - $55) x 100 shares

During the third year, however, stock price decreases from $62 in the previous year to $58. No expense related compensation cost needs to be recognize. Instead, the "Deferred stock option liability" account must be reduced to reflect the total up-to-date compensation. Since too much compensation cost is recognized in the previous years, the excess amount is recorded in a contra account of expense. This account can be viewed as a negative expense account. As a result, the following entry is made:

Deferred stock option liability	400	
Compensation expense-contra		400

-$400 = ($58 - $62) x 100 shares

If J exercises the options at January 1, 1999, his payoff is $800, or ($58 - $50) x 100 shares. The $800 is equal to what has been recorded under "Deferred stock option liability." The following entry is made to record the transaction upon exercise:

Cash ($50 x 100)	5,000	
Deferred stock option liability	800	
Common stock		5,800

The $5,800 worth of common stock is indicative of what the company would receive from an outside investor.

If the option plan is performance-based, the treatment is similar to that under APB 25. An estimated exercise price is used to accrue periodic compensation cost until the actual exercise price is available.

Under this proposed approach, compensation cost is perceived as a liability, not as an equity as in APB 25 and SFAS 123. The classification as a liability can be justified on the ground that the company is obligated to give the employee the benefit of exercising the option when the stock price is high enough. In the example above, as the stock price rises during the first two periods, J is more likely to exercise his options. Thus the company is more obligated to pay J with the payoff of the option. In the third year, however, the stock price drops, and the company's liability is lessened. The reason that

compensation cost is not an equity is argued in the previous section for APB 25.

Although the proposed approach uses the payoff value as the compensation, it does not deny the fact that employee stock options have value. As mentioned earlier, Black and Scholes asserted in their model that the option value is approximately equal to the payoff value of the option if the expiration date is very far in the future. Employee stock options normally have longer terms than traded options. Therefore, in general, the payoff value can be used as a substitute of the option value for compensation cost purpose. The payoff value is much easier to calculate than the option value calculated by the Black-Scholes model. Using the payoff value is more cost-effective.

Since the proposed approach periodically adjusts the compensation cost according to the changes in stock prices, it provide more reliable information to users of financial statements on the potential benefits that the employees will receive. It is a better application of the fair value method than SFAS 123.

Conclusion

APB 25 offers a simple valuation method for employee stock options. Compensation cost under APB 25 is based on the intrinsic value of the options. The value of the option contract is not taken into account. Since its

release in 1972, however, it has been criticized because of its inconsistency in its application to different employee stock option plans. It is also criticized for classifying deferred compensation cost as an asset when such cost is so intangible that it can hardly constitute a prepaid compensation.

SFAS 123 takes the approach to recognize the value of the option contract but overlooks the payoff benefit offered to the grantee of the options. Payoff is the intrinsic value when the option is exercised. It is the monetary benefit received by the employee upon exercise. Unlike APB 25, SFAS 123 considers compensation cost as a periodic expense, not as an asset. SFAS has been under fire for recommending the use of an option-pricing model. The main reason is that the recommended option-pricing models such as the Black-Scholes model and the binomial model have been designed for the valuation of traded options. Several assumptions made for the traded options under these models cannot be applied to employee stock options which are not traded in the open market.

The proposed valuation approach presented in this paper agrees with SFAS 123 that employee stock options have value but uses the payoff value of the options to approximate the option value calculated from an option-pricing model. The underlying assumption is based on the findings of Black and Scholes that because the expiration

date of the options is far in the future, the option value is approximately equal to the payoff value. The payoff value is much simpler to calculate than the option value. Similar to SFAS 123, the proposed approach considers compensation cost as an expense. Unlike APB 25 and SFAS 123, the proposed approach does not recognize the compensation as an equity, but rather a liability. This is based on the assumption that the grantee is more likely to exercise his or her options as the stock price continues to rise. Such liability is similar to a salary payable. The proposed approach also adjusts the payoff value periodically to reflect changes in stock prices. Doing so gives a fair estimate of compensation benefits received by the grantee if the option is exercised immediately. In sum, the proposed valuation approach offers a way to retain advantages in APB 25 and SFAS 123 and to make up the deficiencies.

Endnotes

[1]Dyckman, T.R., Roland E. Dukes, Charles J. Davis. Intermediate Accounting. Revised Edition. Richard D. Irwin, Inc., 1992. P.1184.

[2]"Digest". The Washington Post. February 27, 1996. Financial. P.C01.

[3]Cocco, Anthony, Daniel Ivancevich. "Recognition or Footnote Disclosure of Compensatory Fixed Stock Options?" The CPA Journal. Vol. 65; No. 11; P.54.

[4]"An Exchange Between the Honorable Edward J. Markey, Chairman, U.S. House of Representatives Subcommittee on Telecommunications and Finance, Committee on Energy and Commerce and the Honorable Arthur Levitt, Jr., Chairman, Securities and Exchange Commission." Accounting Horizons. March 1995. Vol. 9, No. 1 PP.71-78.

[5]Ibid.

[6]"Accounting for Stock Issued to Employees". Accounting principles Board opinion No. 25. Accounting Principles Board. October, 1972. Paragraph 7.

[7]Dyckman, T.R., Roland E. Dukes, Charles J. Davis. Intermediate Accounting. Revised Edition. Richard D. Irwin, Inc., 1992. P.1185.

[8]"Accounting for Stock Issued to Employees". Accounting principles Board opinion No. 25. Accounting Principles Board. October, 1972. Paragraph 10.

[9]Statement of Financial Accounting Standards No. 123, "Accounting for Stock-Based Compensation" Financial Accounting Standards Board, October 1995. Paragraphs 76-78.

[10]Accounting Principles Board Statement No. 4, "Basic Concepts and Accounting Principles Underlying Financial Statements of Business Enterprises" (AICPA, 1970), Paragraph 132.

[11]Hendriksen, Eldon S., Michael F. Van Breda. Accounting Theory. 5th Edition. Richard D. Irwin, Inc., 1992. P.279.

[12]Statement of Financial Accounting Standards No. 123, "Accounting for Stock-Based Compensation" Financial Accounting Standards Board, October 1995.

[13]Dakdduk, Kenneth E. "New FASB Rules on Accounting for Stock-Based Compensation." The CPA Journal. March, 1996. Vol. 66; No. 3; Pg. 14.

[14]Statement of Financial Accounting Standards No. 123, "Accounting for Stock-Based Compensation" Financial Accounting Standards Board, October 1995. Paragraph 98.

[15]Statement of Financial Accounting Concepts No. 6. "Elements of Financial Statements." December 1985.

[16]Statement of Financial Accounting Standards No. 123, "Accounting for Stock-Based Compensation" Financial Accounting Standards Board, October 1995. Paragraph 88.

[17]Statement of Financial Accounting Standards No. 123, "Accounting for Stock-Based Compensation" Financial Accounting Standards Board, October 1995. Paragraph 77.

[18]Statement of Financial Accounting Standards No. 123, "Accounting for Stock-Based Compensation" Financial Accounting Standards Board, October 1995. Paragraph 395.

[19]Ijiri, Yuji. Theory of Accounting Measurement. Studies in Accounting Research #10. American Accounting Association. Sarasota, Florida. 1975. P. 86.

[20]Edwards, E. O., and Philip W. Bell. The Theory and Measurement of Business Income. University of California Press, Berkeley and Los Angeles, California. 7th printing, 1973. P. 91.

[21]Black, Fischer, and Myron Scholes. "The Pricing of Options and Corporate Liabilities." The Journal of Political Economy, 81, 3. May-June 1973. PP. 637-654.

[22]Ibid. P. 638.

[23]Ibid. P. 638.

[24]Hendriksen, Eldon S. and Michael F. Van Breda. Accounting Theory. Fifth Edition. Richard D. Irwin, Inc. 1992. P. 169.

[25]Scott, Thomas W., and Peter Tiessen. "Paying the Boss--And How." CA Magazine. Vol. 128, No. 9. PP. 35-38.

[26]Ibid.

[27]Mountain, James R. "FASB 123: Putting Together the Pieces; Employee Stock Options." Journal of Accountancy, January, 1996. Vol. 181; No. 1. P.73.

[28]Stevens, Michael G. "FASB's Stock Option Rules Finally Arrive." Practical Accountant. December 1995. Vol. 28, No. 12. PP.35-40.

[29]Statement of Financial Accounting Standards No. 123, "Accounting for Stock-Based Compensation" Financial Accounting Standards Board, October 1995. Paragraph 286.

[30]Cheney, Glenn. "Valuation's King: FASB Stock Comp Formula is Way Off Base." Accounting Today. February 26, 1996. Vol. 10; No. 4. P. 12.

Bibliography

"An Exchange Between the Honorable Edward J. Markey, Chairman, U.S. House of Representatives Subcommittee on Telecommunications and Finance, Committee on Energy and Commerce and the Honorable Arthur Levitt, Jr., Chairman, Securities and Exchange Commission." Accounting Horizons. March 1995. Vol. 9, No. 1 PP.71-78.

Accounting principles Board Opinion No. 25. "Accounting for Stock Issued to Employees". Accounting Principles Board. October, 1972.

Accounting Principles Board Statement No. 4, "Basic Concepts and Accounting Principles Underlying Financial Statements of Business Enterprises" (AICPA, 1970).

Black, Fischer, and Myron Scholes. "The Pricing of Options and Corporate Liabilities." The Journal of Political Economy, 81, 3. May-June 1973. PP. 637-654.

Cheney, Glenn. "Valuation's King: FASB Stock Comp Formula is Way Off Base." Accounting Today. February 26, 1996. Vol. 10; No. 4. P. 12.

Cocco, Anthony, Daniel Ivancevich. "Recognition or Footnote Disclosure of Compensatory Fixed Stock Options?" The CPA Journal. Vol. 65; No. 11; P.54.

Dakdduk, Kenneth E. "New FASB Rules on Accounting for Stock-Based Compensation." The CPA Journal. March, 1996. Vol. 66; No. 3; Pg. 14.

"Digest". The Washington Post. February 27, 1996. Financial. P.C01.

Dyckman, T.R., Roland E. Dukes, Charles J. Davis. Intermediate Accounting. Revised Edition. Richard D. Irwin, Inc., 1992.

Edwards, E. O., and Philip W. Bell. The Theory and Measurement of Business Income. University of California Press, Berkeley and Los Angeles, California. 7th printing, 1973.

Hendriksen, Eldon S. and Michael F. Van Breda. Accounting Theory. Fifth Edition. Richard D. Irwin, Inc. 1992.

Ijiri, Yuji. Theory of Accounting Measurement. Studies in Accounting Research #10. American Accounting Association. Sarasota, Florida. 1975.

Mountain, James R. "FASB 123: Putting Together the Pieces; Employee Stock Options." Journal of Accountancy, January, 1996. Vol. 181; No. 1. P.73.

Scott, Thomas W., and Peter Tiessen. "Paying the Boss--And How."CA Magazine. Vol. 128, No. 9. PP. 35-38.

Statement of Financial Accounting Concepts No. 6. "Elements of Financial Statements." December 1985.

Statement of Financial Accounting Standards No. 123, "Accounting for Stock-Based Compensation" Financial Accounting Standards Board, October 1995.

Stevens, Michael G. "FASB's Stock Option Rules Finally Arrive." Practical Accountant. December 1995. Vol. 28, No. 12. PP.35-40.